

Curriculum Vitae Leo Posthuma



Personal details

Name: Leo Posthuma
Civil Status: Born 29 September, 1962, Amsterdam, the Netherlands
Sex: male
Marital status: married, 3 children ('97, '99, '99)
Tel. work: +31 30 274 2295
E-mail: leo.posthuma@rivm.nl

Education history

1987 – 1992 PhD, Vrije Universiteit Amsterdam, Faculty of Biology, '*Genetic ecology of metal tolerance in Collembola*'.
Promotor: Prof.dr. N.M. Van Straalen (June 3, 1992)
1986 – present On-the-job trainings (a.o. science writing, project management, project acquisition, quality management, line management, communication, science-policy interfacing, complex projects)
1985 Didactics of biology, Teaching certificate (1st degree)
1979 –1986 Study Biology, Vrije Universiteit Amsterdam, *Cum laude*
Specializations: ecology, ecotoxicology, phytopathology, population genetics, evolutionary biology
1972 – 1979 Secondary school, CSGAN, Amsterdam, VWO

Special certificates

Didactics of biology, Erkend Toxicoloog (Ned. Ver. Toxicologie), registered EUROTOX toxicologist (Association of European Toxicologists and European Societies of Toxicology)

Professional career

2016 – now Professor "Sustainability and Environmental Risks", Radboud University Nijmegen, Nijmegen, the Netherlands
2013 – now Senior Scientist, RIVM, Centre for Sustainability, Environment and Health, the Netherlands
2008 – 2012 Head, Dpt. of Soils and Sediments, RIVM, Laboratory for Ecological Risk Assessment, the Netherlands
2002 – 2012 Senior Scientist, RIVM, Laboratory for Ecological Risk Assessment, RIVM, the Netherlands
1996 – 2002 Senior Scientist, RIVM, Laboratory for Ecotoxicology, RIVM, the Netherlands
1992 – 1996 Scientist, RIVM, Laboratory for Ecotoxicology, the Netherlands.
1987 – 1992 PhD researcher, Vrije Universiteit, Amsterdam
1986 – 1987 Associate researcher, Vrije Universiteit, Amsterdam

Academic activities

Teaching

Regularly guest lecturer and practice-instructor for MSc and Postdoc courses at Vrije Universiteit, Universiteit Amsterdam, Radboud Universiteit, Utrecht Universiteit, Wageningen University, IHE-Delft, SENSE-research school. Mentor SETAC risk assessment certification program (PhD-level, 2015+). Teaching practices, Han Fortmann College Heerhugowaard, 1 yr (teaching certificate).

Academic staff (co-)supervised

MSc: R.F. Hogervorst (Vrije Universiteit), B. Widianarko (Vrije Universiteit, University Satya Wacana, Indonesia), F. Mogo (Int. Inst. Hydrol. Environ. Engin., Delft), H. Boonman (University Utrecht), L. Weltje (University Utrecht), M. Mesman (Vrije Universiteit), R.P.J. Janssen (University Utrecht), K.Kapo (Wright State University, Dayton, OH), Maike Hansen (University Warwick, currently Radboud University, Fac. Science, Chemistry), L. Boonekamp (Univ. Amsterdam), S. Kuiper (University Utrecht), S. van OIst (University Utrecht) Vivienne van Rees Vellinga (University Utrecht), D. van Denzel (University Utrecht), I. Ottenbros (Radboud University), R. Hoondert (Radboud University)

PhD: M.C. Zijp (Radboud University, ongoing), A. Del Signore (née Fedorenkova, Radboud University), K. Kapo (Wright State University, Dayton, OH), A. Pilières (Radboud University, ongoing), M. Gustavsson (Univ. Göteborg, ongoing)

Postdoc: F.de A. Anton-Sanchez (Univ. Madrid), M. Vijver

Summary of recent research

My research concerns the development, validation and application of scientific approaches to address and solve complex, multi-faceted environmental problems, with emphasis on further development of the 'solution-focused' paradigm to risk and sustainability assessment. This requires combining the principles, approaches, models, tests, monitoring- and experiment data from various origins, approaches and disciplines. With an eye on innovating practice- and oriented approaches to problem-solving, this requires combining principles, approaches and data from various disciplines, amongst which ecology, ecotoxicology, and life cycle assessment. Typical results are scientific manuscripts, versatile tools and approaches, and specific policy- or decision support outputs. I see applying evidence-based situation assessment to forward solution-focused sustainable development as particularly challenging and rewarding. Past contributions to the field in this vein are: development, validation and implementation formats of- and tools for (1) quantitative methods for site-specific impacts assessment of chemical mixtures, (2) eco-epidemiological analysis of (bio)monitoring data (site-specific multi-stress diagnosis of ecological impacts), (3) disaster assessment and management esp. for chemical incidents, (4) sustainable management of contaminated water-, sediment and soil systems, and (5) innovating and improving assessment principles and approaches for complex environmental risk- and sustainability problems.

International activities

Strategic scientific underpinning of solution-focused risk and sustainability policies and decisions implies active roles as researcher, work package leader, subproject leader, lecturer, (meeting) organizer or meeting/session chairing in an international context. This resulted in the acquisition of- and participation in international projects in a European context (a.o. EUFRAM, NoMiracle, ModelKey, SOLUTIONS), an Atlantic context (eco-epidemiological diagnosis, esp. with European + U.S. partners) and a global context (solution-focused risk and sustainability assessment; UN-disaster assessment and management), active liaison to activities of international strategic interest (liaising RIVM-research to e.g. the UNEP/SETAC Life Cycle Initiative, or to the concept of designing chemical footprinting techniques *vis a vis* the concept of planetary boundaries), and various collaborative publications, tools, lectures and vision papers. International workshop organization and participation resulted in (edited) books, influential in the field, especially *Species Sensitivity Distributions in Ecotoxicology*, and a vital network of expert contacts spanning academia, government and industry.

Output indicators

Scientific - written

As of September 2016, 58 refereed articles in Web of Science I (co)authored were cited 1932 times in total, WoS H-index 24. Given the role of RIVM as advisor at the science-policy interface, additional analyses focusing on use and application of publications and reports (via Google Scholar) consider a total of 202 refereed articles, book chapters and reports, yielding 4757 times cited in total with a Google Scholar-based H-index (refereed papers) of 37. Highest-cited papers are “Species Sensitivity Distributions in Ecotoxicology” (533 times, book), “Heavy-metal adaptation...” (291 times), “Complex mixture toxicity ...” (201 times), and “Equilibrium partitioning” (189 times), covering all exposure- and effects assessment aspects of ecological risk assessment and life-cycle impact assessment. See further: <http://scholar.google.com/citations?user=IES41U0AAAAJ&hl=en>

Scientific – (invited) lectures

I am regular (>100 times) speaking, presenting and chairing at international workshops and conferences, including invited lectures. Invited keynote lectures at e.g. European Framework Programs (e.g., NoMiracle) and conferences (e.g., SETAC) as well as for stakeholders (e.g., KEMI, Sweden; UK-Environment Agency, Danish EPA, U.S. National Academy of Sciences Committee) are made as appropriate. Ten selected (keynote) lecture invitations and conference lectures are:

1. Conference “Plant Kongress”, Denmark , 2015. Invited keynote lecture: “How to balance agricultural production and environmental quality: a holistic perspective”. Keywords: eco-epidemiology of stressors impacts in agricultural landscapes, sustainable solutions.
2. EDA-Emerge EU-program Closure Conference, 2015, Leipzig, Germany. Invited keynote “Emerging approaches for solution-focused pollution impact reduction”. Keywords: solution focus, risk assessment, chemicals
3. Conference “Defining a safe operating space at a business level: towards (planetary) boundaries for chemical pollution”, UK, Univ. Surrey, Society Industrial Ecology, 2014. Invited lecture “Towards (planetary) boundaries for chemical pollution”. Keywords: planetary boundary, chemical pollution, business-level types of solutions to boundary transgressions
4. Workshop “Estimating toxicity thresholds for aquatic ecological communities from sensitivity distributions”, Amsterdam, 2014. Invited opening keynote lecture: “Sense, simplicity and successes of SSDs in environmental protection, assessment and management”. Keywords: Species Sensitivity Distributions, versatile use: risk assessment, LCA, risk management, sustainable development
5. Conference “SETAC-Europe 24th annual meeting” 2014. Lecture “Solution-focused landscape-level eco(toxico)logical assessment and management”. Keywords: eco-epidemiology, impact diagnoses, role of stressors, chemical mixtures, abatement strategies
6. Congress CHAINS, 2013. Invited lecture: “Follow the chain. In the aftermath of chemical accidents and disasters”. Keywords: swift (chemical) disaster assessment and management, chemical incidents, Moerdijk-accident, validation studies
7. Conference SETAC-Krakow, 2012. Invited keynote lecture: “Ecosystem reality Checks. Mindset for solution-oriented Ecological Risk Assessments.” Keywords: risk assessment, solution-focus, ecosystem services, eco-epidemiology.
8. Conference SETAC Europe: Berlin, 2012. Invited lecture “Towards a boundary or footprint for chemical pollution”, also presented as poster in London, “Planet under Pressure”. Keywords: (planetary) boundary, chemical pollution, sustainable development, chemical footprint.
9. Year meeting Dutch Society for toxicology (NVT, 2012. Invited lecture “ Blast. Let’s re-use environmental (Eco-)toxicology.....”. Keywords: Moerdijk-accident, swift (chemical) disaster assessment and management, human health, nature
10. Special advisory committees on mixtures (EU, Denmark and US-National Academy of Sciences) 2009. “Practical approaches in ecotoxicological mixture risk assessment in support of urgent policy questions” (Denmark) and “Cumulative risk assessment: an ecotoxicology perspective” (US-NAS).

Next to contributions to student courses, lectures are given as appropriate for audiences of regulators, scientists, stakeholders and laymen, to interface scientific results to societal explanation, implementation and use. Examples are contributions to the development of risk communication approaches (a novel RIVM-CSO theme) up till incident

management course development (UN), including local citizen information (e.g., flooding versus contamination evaluation, municipality Lomm, along river Meuse).

Societal and advisory indicators

Scientific activities resulted also in a suite of practicable tools developed with colleagues within RIVM and around the world, to help solving contemporary environmental policy problems. Societal impact of project results I (co)created: meaningful, nationally and internationally.

(1) Operational science-policy approaches. Various complex environmental problems are currently handled in part based on such tools and related insights, like:

- development and validation of the concept of toxic pressure of compounds and mixtures, used in a suite of globally-used tools and approaches in water, sediment and soil quality assessment, with extensions into approaches ranging from Life Cycle Assessments of industrial products (e.g., website Sustainability Consortium) up till disaster impact assessment and risk reduction tools
- contaminated soil management: development of the current Dutch soil management policies and the supporting web-tool: www.risicotoolboxbodem.nl
- contaminated sediment management: development of the current Dutch sediment-on-land deposition policies
- disaster assessment and management tool *Flash Environmental Assessment Tool* for the UN: development of a quick-response tool, regarding impacts on man, livelihoods and ecosystems (ecosystem services)
- incident assessment tool for assessing potential impacts of chemical emissions on European protected nature areas
- waste management and sustainable solutions: balancing soil safety, energy generation from organic waste, fertilizer loads, and resource allocation
- water management: landscape-scale eco-epidemiological diagnosis and impact management, related to the concept of *Good Ecological Status* in the Water Framework Directive, especially regarding recognizing toxic mixture effects causing deviance from *Good Ecological Status*
- generalized methods and data bases for environmental assessment, a.o., the RIVM e-toxBase
- development of an approach for determining chemical overshoot (emissions exceed carrying capacity), i.e. chemical footprinting
- development of sustainability evaluation tools, amongst others the implementation of the 'solution-focused' paradigm in risk and sustainability assessments (ongoing)

(2) Advisory

- Advisor Danish Ministry of the Environment and the Danish Environmental Protection Agency, cumulative risk assessment
- Advisor US-National Academy of Science, Commission on Phthalates and Cumulative Risk Assessment
- Advisor Committee Maaswerken
- Advisor (interface science and legal prosecution case), Province Zuid-Holland, Raad van State, Case: "Risks of large scale re-use or dumping of PAH-amended secondary waste" (case won)
- Advisor (interface science and legal prosecution case), Ministry V&W, Case "Risks of contamination Rijkse Bemden" (case solved)
- Advisor UK Committee on the Water Framework Directive Strategy
- Advisor International Committee on Radiological Protection, ICRP, 2015+
- Advisor, member crisis management team, leader Environmental Impact Evaluation branche, Ministry VROM, 2011; Case: Environmental and human risks of depositions chemical store fire, Moerdijk; case clear (result: negligible impacts on environment and protected nature in zones North of Hollandsch Diep)
- Advisor, Ministry VROM, 2010/2011; Case Environmental and human risks of depositions BOPEC Fire Bonaire (result: advice accepted)
- Advisor, Ministry VROM, 2010/2011; Case Environmental risks PF-compounds Haarlemmermeer (result: advice accepted)
- Advisor, UN (United Nations Joint Environment Unit), Building and using the Flash Environmental Assessment Tool. Making and implementation of Version 1. Ibid. Version 2. Ibid. Pocket Guide version 2. Ibid. Towards eFEAT. Ibid. Case studies workshop. Ibid. Web-based study material.

- Oral, teleconference and on-site public presentations and advice, e.g., in the municipality Lomm (river Meuse), government Bonaire, stakeholders sediment deposition on land, et cetera.
- Advisor, NTA8080 en 8081 (Nederlandse Technische Afspraak over duurzaam gebruik van organische (rest)stromen voor energiedoelinden
- Advisor in advisory team to CEO-RIVM, on design and implementation Expert-track of the RIVM-Academy (2014+)

Other academic activities

Book editor

Editor Textbook "*Species Sensitivity Distributions in Ecotoxicology*" (Lewis Publishers, 2002), with Glenn W. Suter II and Theo P. Traas

Co-editor Textbook "*Extrapolation practices in the Effect Characterization of Chemicals*", with K. Solomon et al.

Project review- and evaluation committees

Reviewer of 20+ research proposals, nationally and internationally.

Recent membership PhD evaluation- and defense committees

PhD M. Gustavsson (Goteborg University) – current

PhD R. Oldenkamp (Radboud Universiteit Nijmegen) – 2016 (cum laude)

PhD T. van Goethem (Radboud Universiteit Nijmegen) – 2016

PhD A. Pilières (Radboud Universiteit Nijmegen) – 2015

PhD A. Del Signore (born Fedorenkova) (Radboud Universiteit Nijmegen) - 2015

PhD L. Golsteijn (Radboud Universiteit Nijmegen) - 2014

PhD R.A. Loayza-Muro (Universiteit van Amsterdam) - 2013

PhD K. Kapo (Wright State University, OH, USA) - 2009

PhD I. Sterenborg (Vrije Universiteit Amsterdam) - 2003

Publication peer reviews

Regular reviewer for scientific journals (Applied Soil Ecology, Aquatic Toxicology, Archives Environmental Contamination Toxicology, Ecotoxicology and Environmental Safety, Environmental Pollution, Environmental Science and Pollution Research, Environmental Science and Technology, Environmental Toxicology and Chemistry, Human and Ecological Risk Assessment, Freshwater Biology, Integrated Environmental Assessment and Management, Journal of Toxicology and Environmental Health, Marine Pollution Bulletin, Philosophical Transaction of the British Ecological Society, Regulatory Pharmacology and Toxicology, Science of the Total Environment, Sustainability, Toxics, WIRE Water).

Rewards

Green Star Award (issued by UN + International Green Cross), awarded to the Dutch government, for developing FEAT (a disaster assessment and management tool) by RIVM (combined with FEAT training and incident measurement facilities).

Administration and professional societies

Department Head 2008-2012, RIVM

Member of various global workgroups on developing diagnostic, eco-epidemiological techniques; member of active teams for extrapolation techniques in environmental risk assessment (1992 – now)

(Co-)Organizer committees of national and international scientific meetings and workshops

Member of the Society for Environmental Toxicology and Chemistry, Netherlands Society of Toxicology, Netherlands-Flamish Society of Ecology.

Skills and competences

Languages

- English: effective operational proficiency
- French: reasonable
- German: reasonable

Other skills and competences

Chair, treasurer and/or member of various executive teams of volunteer organizations (local, regional and national) and school management advisory bodies (primary/secondary school); basketball referee.

Publications and Reports

Journal publications, peer reviewed (MS=Manuscript, PR = Peer reviewed)

Cites	Year	Type	Product
37	1988	MS-PR	Verhoeff, K., Leeman, M., Van Peer, R., Posthuma, L. , Schot, N., & Van Eijck, G.W. (1988) Changes of pH and the introduction of organic acids during colonization of tomato petioles by <i>Botrytis cinerea</i> . Journal of Phytopathology 122: 327-336
81	1990	MS-PR	Posthuma, L. (1990) Genetic differentiation between populations of <i>Orchesella cincta</i> (L.) (Collembola) from heavy metal contaminated sites. Journal of Applied Ecology, 27(2): 609-622
93	1992	MS-PR	Posthuma, L. , Hogervorst, R.F., & Van Straalen, N.M. (1992) Adaptation to soil pollution by cadmium excretion in natural populations of <i>Orchesella cincta</i> (L.) (Collembola). Archives of Environmental Contamination and Toxicology, 22: 146-156
38	1992	MS-PR	Fрати, F., Fanciulli, P.P., & Posthuma, L. (1992) Allozyme variation in reference and metal-adapted natural populations of <i>Orchesella cincta</i> (L.) (Collembola). Biochemical Systematics and Ecology 20: 297-310.
275	1993	MS-PR	Posthuma, L. & Van Straalen, N.M. (1993) Heavy-metal adaptation in terrestrial invertebrates: a review of occurrence, genetics, physiology and consequences. Comparative Physiology and Biochemistry, 106(1): 11-38.
76	1993	MS-PR	Posthuma, L. , Hogervorst R.F., Joesse, E.N.G. & Van Straalen, N.M. (1993) Genetic variation and covariation for characteristics associated with cadmium tolerance in the springtail, <i>Orchesella cincta</i> (L.). Evolution, 47: 619-631.
53	1993	MS-PR	Posthuma, L. Widianarko, B. Zonneveld, C. & Verweij R.A. (1993) Life-history patterns in metal-adapted Collembola. Oikos, 67(2): 235-249.
6	1995	MS-PR	Posthuma, L. , & Janssen, G.M. (1995) Genetic variation for life-history characteristics in reference populations of <i>Orchesella cincta</i> (L.) in relation to evolutionary responses to metals in soils. Acta Zoologica Fennica 196: 301-306
183	1997	MS-PR	Janssen R.P.T., Peijnenburg W.J.G.M., Posthuma L. & Van Den Hoop M.A.G.T. (1997) Equilibrium partitioning of heavy metals in Dutch field soils. I. Relationships between metal partition coefficients and soil characteristics. Environ. Toxicol. Chem. 16(12): 2470-2478
133	1997	MS-PR	Janssen R.P.T., Posthuma L. , Baerselman R., Den Hollander H.A., Van Veen R.P.M. & Peijnenburg W.J.G.M. (1997) Equilibrium partitioning of heavy metals in Dutch field soils. II. Prediction of metal accumulation in earthworms. Environ. Toxicol. Chem. 16: 2479-2488
175	1997	MS-PR	Peijnenburg, W. J. G. M., Posthuma, L. Eijsackers H. J. P. and H. E. Allen. (1997) A conceptual framework for implementation of bioavailability of metals for environmental management purposes. Ecotoxicol. Environ. Saf. 37:163-172
67	1997	MS-PR	Posthuma, L. , Baerselman R., Van Veen R., Dirven-Van Breemen E.M. (1997) Single and joint toxic effects of copper and zinc on reproduction of <i>Enchytraeus crypticus</i> in relation to sorption of metals in soils. Ecotoxicol. Environ. Saf. 38: 108-121
98	1998	MS-PR	Rutgers, M., Van 't Verlaat, I.M., Wind, B., Posthuma, L. , and Breure, A. M. (1998) Rapid method to assess pollution-induced community tolerance in contaminated soil. Environ. Toxicol. Chem. 17:2210-2213.
159	1999	MS-PR	Peijnenburg, W. J. G. M., Baerselman, R., De Groot, A.C., Jager, D.T., Posthuma, L. and Van Veen, R.P.M. (1999) Relating environmental availability to bioavailability: Soil type dependent metal accumulation in the oligochaete <i>Eisenia andrei</i> . Ecotoxicol. Environ. Saf. 44:294-310
109	1999	MS-PR	Peijnenburg, W.J.G.M., Posthuma, L. , P. Zweers, G.P.C., Baerselman, R., De Groot, A.C., Van Veen R.P.M. and Jager, D.T. (1999) Prediction of metal bioavailability in Dutch field soils for the oligochaete <i>Enchytraeus crypticus</i> . Ecotoxicol. Environ. Saf. 43:170-186
86	2000	MS-PR	Jager, D.T.; Antón-Sánchez, F.A.; Muijs, B.; Van Der Velde, E.G., and Posthuma, L. (2000) Toxicokinetics of polycyclic aromatic hydrocarbons in <i>Eisenia andrei</i> (Oligochaeta) using spiked soil. Environ. Toxicol. Chem. 2000; 19(4):953-961.
97	2000	MS-PR	Peijnenburg, W.J.G.M. , Baerselman, R., De Groot, A., Jager, D.T., Leenders, D., Posthuma, L. , and Van Veen, R. (2000) Quantification of metal availability for Lettuce (<i>Lactuca sativa</i> L.) in field soils. Arch. Environ. Contam. Toxicol. 39: 420-430
	2000	MS-PR	Römbke, J., J. Notenboom, and L. Posthuma. 2002. The effects of zinc on enchytraeids: The Budel case study. Natura Jutlandica, Occasional Papers 2:54-67.
47	2001	MS-PR	Vijver, M., Jager, D.T., Posthuma, L. , and Peijnenburg, W.J.G.M. (2001). Impact of metal pools and soil properties on metal accumulation in <i>Folsomia candida</i> (Collembola). Environmental Toxicology and Chemistry 20 (4):712-720
77	2002	MS-PR	Boivin, M.E.Y., Breure, A.M., Posthuma, L. and Rutgers, M. (2002). Determination of field effects of contaminants - Significance of pollution-induced community tolerance. Human and Ecological Risk Assessment 8 (5):1035-1055
46	2002	MS-PR	Smit, C.E.; Schouten, A.J.; Van Den Brink, P.J.; Esbroek, M.L.P., and Posthuma, L. (2002) Effects of zinc contamination on a natural nematode community in outdoor soil mesocosms. Arch. Environ. Contam. Toxicol. 42(2): 205-216
23	2003	MS-PR	Vijver, M., Jager, D.T., Posthuma, L. and Peijnenburg, W. G. J. M. (2003). Metal uptake from soils and soil-sediment mixtures by larvae of <i>Tenebrio molitor</i> (L.) (Coleoptera). Anonymous. Anonymous. Ecotoxicol. Environ. Saf. 54(3):277-289.
37	2004	MS-PR	Van Beelen P, Wouterse M, Rutgers M, Posthuma L. 2004. Location specific ecotoxicological risk assessment of metal polluted soils. Environmental Toxicology and Chemistry 23(11): 2769-2779
12	2005	MS-PR	Peijnenburg W, De Groot A, Jager T, Posthuma L. 2005. Short-term ecological risks of depositing contaminated sediment on arable soil. Ecotoxicol. Environ. Saf. 60(1):1-14
179	2005	MS-PR	De Zwart D, Posthuma L. 2005. Complex mixture toxicity for single and multiple species: proposed methodologies. Environmental Toxicology and Chemistry 24:2665-2672
54	2006	MS-PR	De Zwart D, Dyer SD, Posthuma L. Hawkins CP. 2006. Predictive models attribute effects on fish assemblages to toxicity and habitat alteration on the biological condition of fish assemblages. Ecological Applications 16(4):1295-1310
69	2006	MS-PR	Posthuma L. De Zwart D. 2006. Predicted effects of toxicant mixtures are confirmed by changes in fish species assemblages in Ohio, USA, rivers. Environ. Toxicol Chem. 25(4):1094-1105

- 29 2006 MS-PR Harbers JV, Huijbregts MAJ, **Posthuma L**, van de Meent D. 2006. Estimating the Impact of High-Production-Volume Chemicals on Remote Ecosystems by Toxic Pressure Calculation. *Environ. Sci. Technol.* 40:1573-1580
- 8 2007 MS-PR Mulder C, Baerselman R, **Posthuma L**. 2007. Empirical life span of earthworms is twice that of mice. *Age* 29 (4):229-231
- 5 2007 MS-PR Mulder C, Wouterse M, Rutgers M, **Posthuma L**. 2007. Transgenic maize containing the Cry1Ab protein ephemerally enhances soil microbial communities. *Ambio* 36(4):359-361
- 25 2007 MS-PR Jager DT, **Posthuma L**, De Zwart D, Van de Meent D. 2007. Novel view on predicting acute toxicity: decomposing toxicity data in species vulnerability and chemical potency. *Ecotoxicology and Environmental Safety*, 67: 311-322
- 37 2007 MS-PR Van Zelm R, Huijbregts MAJ, Harbers JV, Wintersen A, Struijs J, **Posthuma L**, Van de Meent D. 2007. Uncertainty in msPAF-based ecotoxicological effect factors for freshwater ecosystems in life cycle impact assessment. *Integrated Environmental Assessment and Management* 3(2):203-210
- 1 2007 MS-PR Mulder C, Hendriks J, Baerselman R, **Posthuma L**. 2007. Age structure and senescence in long-term cohorts of *Eisenia andrei* (Oligochaeta, Lumbricidae) *Journal of Gerontology* 62(12):1361-1363
- 12 2008 MS-PR Henning-De Jong I, Van Zelm R, Huijbregts MAJ, De Zwart D, Van der Linden AMA, Wintersen A, **Posthuma L**, Van de Meent D. 2008. Ranking of agricultural pesticides in the Rhine-Meuse-Scheldt basin based on Toxic Pressure in marine ecosystems *Environmental Toxicology Chemistry* 27(3):737-745
- 19 2008 MS-PR Vijver MG, Spijker J, Vink JPM, **Posthuma L**. 2008. Determining metal origins and availability in fluvial deposits by analysis of geochemical baselines and solid-solution partitioning measurements and modelling. *Environmental Pollution* 156(3):832-839
- 16 2008 MS-PR Kapo KE, Burton GAJ, De Zwart D, **Posthuma L**, Dyer SD. 2008. Quantitative lines of evidence for screening-level diagnostic assessment of regional fish community impacts: a comparison of spatial database evaluation methods *Environmental Science and Technology* 42(24):9412-9418
- 29 2008 MS-PR **Posthuma L**, Eijssackers HJP, Koelmans AA, Vijver MG. 2008. Ecological effects of diffuse mixed pollution are site-specific and require higher-tier risk assessment to improve site management decisions: A discussion paper. *Science of the Total Environment* 406:503-517
- 10 2009 MS-PR Henning-de Jong I, Ragas AMJ, Hendriks HWM, Huijbregts MAJ, **Posthuma L**, Wintersen A, Hendriks AJ (2009) The impact of an additional ecotoxicity test on ecological quality standards. *Ecotoxicology and Environmental Safety* 72(8), 2037-2045
- 31 2009 MS-PR De Zwart D, **Posthuma L**, Gevrey M, Von der Ohe PC, De Deckere E. 2009. Diagnosis of ecosystem impairment in a multiple stress context - how to formulate effective river basin management plans *Integrated Environmental Assessment and Monitoring* 5(1):38-49
- 33 2009 MS-PR Brack W, Apitz SE, Borchard D, Brils J, Cardoso AC, Foekema EM, Van Gils Jv, Jansen B, Harris M, Hein M, **Posthuma L**. et al. 2009. Towards a holistic and risk-based management of European river basin *Integr Environ Assess Management* 5(1):5-10
- 1 2009 MS-PR Brack W, **Posthuma L**, Hein M, Von der Ohe P. 2009. European River Basins at Risk. *Integr Environ Assess Management* 5(1):2-4
- 27 2009 MS-PR Van Zelm R, Huijbregts MAJ, **Posthuma L**, Wintersen A, Van de Meent D. 2009. Pesticide ecotoxicological effect factors and their uncertainties for freshwater ecosystems. *Int. J. LCA* 14(1):43-51
- 10 2010 MS-PR Hein M, De Deckere E, De Zwart D, Foekema EM, Marcomini A, Muñoz I, **Posthuma L**, Rotter S, Sabater S, Schmitt C et al. 2010. MODELKEY. Key findings and recommendations for reaching the EU Water Framework Directive's quality objectives. *Umweltwiss Schadst Forsch* 22:217-228
- 8 2011 MS-PR Spijker J, Mol G, **Posthuma L**. 2011. Regional ecotoxicological hazards associated with anthropogenic enrichment of heavy metals. *Environmental Geochemistry and Health* 33(4):409-426
- 27 2011 MS-PR Struijs J, De Zwart D, **Posthuma L**, Leuven RSEW, Huijbregts MAJ. 2010. Field sensitivity distribution of macroinvertebrates for phosphorus in inland waters. *Integr Environ Assess Manag.* 7(2):280-286
- 14 2012 MS-PR Burton GA, De Zwart D, Diamond J, Dyer SD, Kapo KE, Liess M, **Posthuma L**. 2012. Making Ecosystem Reality Checks the status quo. *Environ Toxicol Chem* 31:459-468
- 15 2012 MS-PR **Posthuma L**, De Zwart D. 2012. Predicted mixture toxic pressure relates to observed fraction of benthic macrofauna species impacted by contaminant mixtures. *Environ Toxicol Chem* 31:2175-2188
- 37 2012 MS-PR Swartjes, F. A., M. Rutgers, J. P. A. Lijzen, P. J. C. M. Janssen, P. F. Otte, A. Wintersen, E. Brand, and **L. Posthuma**. 2012. State of the art of contaminated site management in The Netherlands: Policy framework and risk assessment tools. *Science of the Total Environment* 427-428:1-10.
- 12 2012 MS-PR Breure, A. M., G. B. De Deyn, E. Dominati, T. Eglin, K. Hedlund, J. Van Orshoven, and **L. Posthuma**. 2012. Ecosystem services: A useful concept for soil policy making! *Current Opinion in Environmental Sustainability* 4:578-585.
- 3 2014 MS-PR Pilière, A., A. M. Schipper, A. M. Breure, **L. Posthuma**, D. de Zwart, S. D. Dyer, and M. A. J. Huijbregts. 2014. Comparing responses of freshwater fish and invertebrate community integrity along multiple environmental gradients. *Ecological Indicators* 43:215-226.
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